

# On the limit $\alpha \rightarrow 0$ of the Euler- $\alpha$ equations with Dirichlet boundary conditions

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The Euler- $\alpha$  equations are an approximation to the incompressible Euler equations which arise in many different contexts. They arise in turbulence modelling, also as the inviscid case of second grade equations which model non-Newtonian fluids of differential type, and also as a special case of the vortex blob method for computing inviscid fluid dynamics. Formally the limit  $\alpha \rightarrow 0$  is the Euler system. Recently there has been some progress on understanding the limit as  $\alpha \rightarrow 0$  in the presence of boundaries, under the no-slip boundary condition. This is of interest as boundary layers arise, much as in the vanishing viscosity problem for Navier-Stokes. On this talk I will review the recent results and discuss new results for vortex sheet data. This is a report on joint work with A. Valentina Busuioc, Dragos Iftimie and Milton Lopes Filho.